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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Title : Database Management System and Method which Automatically
Schedules and Performs Actions and Monitors Results
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Serial No : 09/991,561 § Examiner : Charles Rones
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APPEAL BRIEF

This is an appeal from the final rejection of claims 1 through 39 as set forth in
the Examiner's Final Office Action (dated 8 April 2004).

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REAL PARTY IN INTEREST

The real party in interest in the above-referenced application is BMC Software, Inc. of Houston, Texas.

RELATED APPEALS AND INTERFERENCES

To the present knowledge of Appellants' representative, there are currently no related appeals or interference proceedings that will directly affect, or be directly affected by, or have a bearing on, the Board's decision in the present Appeal.

STATUS OF CLAIMS

Claims 1-39 are currently pending in the instant patent application. Claims 1-39 stand rejected under 35 U.S.C. 102 as a being anticipated by US patent 6,282,570 to Leung et al. (Final Office Action dated 8 April 2004 at pages 2-6.)

STATUS OF AMENDMENTS

No amendments have been made to any claim. No claims have been added and no claims have been cancelled. Accordingly, claims 1-39 stand as originally filed.

SUMMARY OF INVENTION

The invention is directed to methods and devices that "identify conditions that cause performance or availability problems in data base objects ... [and] ... then plan, execute and manage maintenance activities to correct those conditions." (Specification at page 3, lines 3-11; see also page 13, lines 9-19; and Abstract.) More specifically, the invention is directed to methods and devices for collecting statistics associated with the operation of a computer database, determining characteristics of one or more objects

within the database, determining actions to be performed on the one or more database objects based on the determined characteristics, automatically determining a schedule for performing the actions, performing the actions, confirming performance of the actions and monitoring results of the actions. (Specification at claim 1; see also page 13, lines 9-19; Figures 8-14 and associated discussion at page 27, line 12 to page 30, line 24; and Abstract.)

Statistics with respect to database operations include, for example, object or activity level measures (e.g., page 3, lines 16-17; page 4, lines 21-22; page 15, line 6 to page 16, line 10). Determination of database object characteristics may include the use of policies and/or definitions applied to the collected statistics (e.g., page 3, lines 18-21; page 23, lines 15-22). Illustrative actions include database REORG operations (e.g., page 5, lines 14-21), database partition changes, key generation and other physical changes to the database (e.g., page 5, line 23 to page 6, line 2; page 24, lines 4-7; and page 24, line 25 to page 26, line 9). Scheduling may include estimating the resource usage and interdependencies between various actions so as to optimize their overall performance/execution (e.g., page 17, line 26 to page 19, line 20; page 20, lines 1-10).

ISSUES

Whether independent claims 1, 14 and 27 are anticipated by Leung et al. (US 6,282,570).

GROUPING OF CLAIMS

Claims 1-39 stand or fall together.

ARGUMENT: CLAIMS 1-39 ARE NOT ANTICIPATED BY LEUNG ET AL.**1. Legal Principles**

"For a prior art reference to anticipate in terms of 35 U.S.C. 102, every element of the claimed invention must be identically shown in a single reference." *Diversitech Corp. v. Century Steps, Inc.*, 850 F.2d 675, 677 (Fed. Cir. 1988). Further, the "identical invention must be shown in as complete detail as is contained in the patent claim" (*Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236 (Fed. Cir.), *cert. denied*, 493 U.S. 853 (1989)) and the "elements must be arranged as in the claim under review" (*In re Bond*, 910 F.2d 831, 832 Fed. Cir. 1990), *reh'g denied*, 1990 U.S. App. LEXIS 19971 (Fed. Cir. 1990)). See also M.P.E.P. 2131.

2. Review of US Patent 6,282,570 to Leung et al.

Leung appears directed to a method and apparatus for "monitoring performance of a parallel database" (Abstract) for the purposes of increasing "the precision of monitoring results ... [and] ... to return the best results possible within a defined time limit" (col. 2, lines 25-30). More particularly, Leung describes a monitoring system that "uses dynamic grouping and sequential sampling to monitor parallel databases" (col. 6, lines 2-3) - "collecting data from as many of the monitored nodes as possible" within a specified time limit (col. 5, lines 21-55; and col. 8, lines 41-55) to generate a single performance value for the user (col. 4, lines 54-56).

3. Examiner's Rejection

With respect to independent claims 1, 14 and 27, the Examiner relies exclusively on the following passages from Leung:

Column 4, lines 1-25: Describes the prior art database system of FIG. 2 wherein performance statistics for a database are collected and used in predefined

formulas to determine a performance value which is then compared to a predefined threshold value. Such performance statistics may be stored in the database for subsequent retrieval and use.

Column 5, lines 21-55: Discusses the problem associated with "[c]ollecting monitoring statistics from large parallel databases" where the time required to obtain samples from all specified nodes exceeds the permissible sample interval. In this case, Leung suggests that one "collect monitoring statistics from a limited number of database nodes."

Column 8, lines 41-55: Describes how a method in accordance with Leung "systematically collect[s] performance data from a group of database nodes based on the available resources and a specified time limit" wherein the collected data from each node may be "shared with other monitors or used in a future execution of the same monitor."

Column 10, lines 22-54: Describes the method of FIG. 8 in which a specified number of database nodes are monitored (i.e., sampled) within a specified interval.

4. Analysis

Each of independent claims 1, 14 and 27 recite acts, or instructions for performing the acts, of: (1) collecting statistics relating to the operation of a database, wherein the database comprises one or more database objects; (2) determining characteristics of the database objects; (3) determining actions to be performed on the database objects based on the determined characteristics; (4) automatically determining a schedule for performing the actions; (5) performing the actions based on the schedule; (6) confirming performance of the actions; and (7) monitoring results of the performed actions.

While Leung can fairly be read to discuss the acts of collecting statistics and determining characteristics of database objects, nowhere does Leung describe, discuss or even suggest the recited acts of **determining actions** to be performed on the database objects based on the characteristics of the database objects or automatically determining a schedule for performing the actions on the database objects or performing the actions on the database objects based on the schedule or confirming the performing the actions on the database objects or monitoring results of the performing the actions on the database objects.

As shown above, the passages relied upon by the Examiner to reject Independent claims 1, 14 and 27 are totally irrelevant with respect to the recited acts of determining, automatically determining a schedule, performing the actions based on the schedule or monitoring the results of performing the scheduled actions. In fact, nowhere does Leung teach, describe, discuss or even suggest any of these recited acts.

Accordingly, because Leung fails to teach (or even suggest) each and every claimed element in independent claims 1, 14 and 27, the Examiner has failed to make a legitimate anticipatory rejection under section 102. For at least the same reasons, claims 2-13, 15-26 and 28-39 (each of which depend from one of independent claims 1, 14 and 27) are not anticipated by Leung.

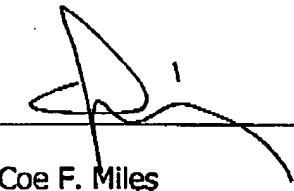
SUMMARY AND CONCLUSIONS

In light of the aforementioned distinctions, Appellant submits that the claimed inventions are patentably distinct over the cited prior art, and respectfully requests the Board reverse the Examiner's rejections as to claims 1-39 and allow the claims to issue.

-- Signature Page Follows --

29 JUNE 2004

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APPENDIX

1. (Original) A database management method comprising:
 - collecting statistics relating to operation of a database, wherein the database comprises one or more database objects;
 - determining characteristics of the database objects;
 - determining actions to be performed on the database objects based on the characteristics of the database objects;
 - automatically determining a schedule for performing the actions on the database objects;
 - performing the actions on the database objects based on the schedule;
 - confirming the performing the actions on the database objects; and
 - monitoring results of the performing the actions on the database objects.
2. (Original) The database management method of claim 1, wherein the statistics comprise object-level statistics.
3. (Original) The database management method of claim 1, wherein the statistics comprise activity-level statistics.
4. (Original) The database management method of claim 1, wherein the determining the characteristics of the database objects comprises determining the characteristics of the database objects using the collected statistics.

5. (Or ginal) The database management method of claim 1, wherein the determining the characteristics of the database objects comprises determining the characteristics of the database objects using one or more policies.
6. (Or ginal) The database management method of claim 5, further comprising: a user customizing the one or more policies.
7. (Or ginal) The database management method of claim 1, wherein the determining the characteristics of the database objects comprises determining the characteristics of the database objects using one or more definitions.
8. (Or ginal) The database management method of claim 7, further comprising: a user customizing the one or more definitions.
9. (Original) The database management method of claim 1, further comprising: performing the actions on the database objects based on the schedule; confirming the performing the actions on the database objects; and analyzing results of the performing the actions on the database objects.
10. (Original) The database management method of claim 9, further comprising: reconfiguring one or more policies based on the analyzing the results of the performing the scheduled actions on the database objects.

APPENDIX

11. (Original) The database management method of claim 1, wherein the determining the characteristics of the database objects comprises automatically determining the characteristics of the database objects.
12. (Original) The database management method of claim 1, wherein the determining the actions to be performed on the database objects based on the characteristics of the database objects comprises automatically determining the actions to be performed on the database objects based on the characteristics of the database objects.
13. (Original) The database management method of claim 1, wherein the performing the actions on the database objects based on the schedule comprises automatically performing the actions on the database objects based on the schedule.

APPENDIX

14. (Original) A carrier medium comprising program instructions, wherein the program instructions are computer-executable to implement:

collecting statistics relating to operation of a database, wherein the database comprises one or more database objects;

determining characteristics of the database objects;

determining actions to be performed on the database objects based on the characteristics of the database objects;

automatically determining a schedule for performing the actions on the database objects;

performing the actions on the database objects based on the schedule;

confirming the performing the actions on the database objects; and

monitoring results of the performing the actions on the database objects.

15. (Original) The carrier medium of claim 14, wherein the statistics comprise object-level statistics.

16. (Original) The carrier medium of claim 14, wherein the statistics comprise activity-level statistics.

17. (Original) The carrier medium of claim 14, wherein the determining the characteristics of the database objects comprises determining the characteristics of the database objects using the collected statistics.

18. (Original) The carrier medium of claim 14, wherein the determining the characteristics of the database objects comprises determining the characteristics of the database objects using one or more policies.

19. (Original) The carrier medium of claim 18, wherein the program instructions are further computer-executable to implement: customizing the one or more policies.

20. (Original) The carrier medium of claim 14, wherein the determining the characteristics of the database objects comprises determining the characteristics of the database objects using one or more definitions.

21. (Original) The carrier medium of claim 20, wherein the program instructions are further computer-executable to implement: customizing the one or more definitions.

22. (Original) The carrier medium of claim 14, wherein the program instructions are further computer-executable to implement: performing the actions on the database objects based on the schedule; confirming the performing the actions on the database objects; and analyzing results of the performing the actions on the database objects.

23. (Original) The carrier medium of claim 22, wherein the program instructions are further computer-executable to implement: reconfiguring one or more policies based on the analyzing the results of the performing the scheduled actions on the database objects.

24. (Original) The carrier medium of claim 14, wherein the determining the characteristics of the database objects comprises automatically determining the characteristics of the database objects.

25. (Original) The carrier medium of claim 14, wherein the determining the actions to be performed on the database objects based on the characteristics of the database objects comprises automatically determining the actions to be performed on the database objects based on the characteristics of the database objects.

26. (Original) The carrier medium of claim 14, wherein the performing the actions on the database objects based on the schedule comprises automatically performing the actions on the database objects based on the schedule.

27. (Original) A database management system comprising:

a CPU;

a database coupled to the CPU, wherein the database comprises one or more database objects;

a memory coupled to the CPU, wherein the memory stores program instructions which are executable by the CPU to:

collect statistics relating to operation of the database;

determine characteristics of the database objects;

determine actions to be performed on the database objects based on the characteristics of the database objects;

automatically determine a schedule for performing the actions on the database objects;

perform the actions on the database objects based on the schedule;

confirm the performing the actions on the database objects; and

monitor results of the performing the actions on the database objects.

28. (Original) The database management system of claim 27, wherein the statistics comprise object-level statistics.

29. (Original) The database management system of claim 27, wherein the statistics comprise activity-level statistics.

30. (Original) The database management system of claim 27, wherein in determining the characteristics of the database objects, the program instructions are further executable by the CPU to determine the characteristics of the database objects using the collected statistics.

31. (Original) The database management system of claim 27, wherein in determining the characteristics of the database objects, the program instructions are further executable by the CPU to determine the characteristics of the database objects using one or more policies.

32. (Original) The database management system of claim 31, wherein the program instructions are further executable by the CPU to: customize the one or more policies.

33. (Original) The database management system of claim 27, wherein in determining the characteristics of the database objects, the program instructions are further executable by the CPU to determine the characteristics of the database objects using one or more definitions.

34. (Original) The database management system of claim 33, wherein the program instructions are further executable by the CPU to: customize the one or more definitions.

35. (Original) The database management system of claim 27, wherein the program instructions are further executable by the CPU to: perform the actions on the database objects based on the schedule; confirm the performing the actions on the database objects; and analyze results of the performing the actions on the database objects.

36. (Original) The database management system of claim 35, wherein the program instructions are further executable by the CPU to: reconfigure one or more policies based on the analyzing the results of the performing the scheduled actions on the database objects.

37. (Original) The database management system of claim 27, wherein in determining the characteristics of the database objects, the program instructions are further executable by the CPU to automatically determine the characteristics of the database objects.

38. (Original) The database management system of claim 27, wherein in determining the actions to be performed on the database objects based on the characteristics of the database objects, the program instructions are further executable by the CPU to automatically determine the actions to be performed on the database objects based on the characteristics of the database objects.

39. (Original) The database management system of claim 27, wherein in performing the actions on the database objects based on the schedule, the program instructions are further executable by the CPU to automatically perform the actions on the database objects based on the schedule.